Request to Archive
With The National Centers for Environmental Information
For Rapid Refresh (RAP) - Native Grid Data
Provided by NCEP

2014-08-08

This information will be used by NCEI to conduct an appraisal and make a decision on the request.

1. Who is the primary point of contact for this request?

Jeff Budai

NCDC

(828) 271-4454

jeff.budai@noaa.gov

2. Name the organization or group responsible for creating the dataset.

National Centers for Environmental Prediction (NCEP)

3. Provide an overview summarizing the scope of data you want to archive. Describe the outputs, data variables, including their measurement resolution and coverage.

The Rapid Refresh (RAP) replaced the Rapid Update Cycle (RUC) as the NOAA hourly-updated assimilation/modeling system operational at NCEP starting 1 May 2012. Implementation at NCEP of RAP Version 2 (RAPv2) occurred at 12z 25 Feb 2014. The NCEP Rapid Refresh uses a RAP-configuration of the WRF model, with ARW core with this physics suite: Grell-G3 convection, Thompson/NCAR microphysics, RRTM longwave radiation, Goddard shortwave radiation, MYNN-Olson turbulent mixing, RUC-Smirnova land-surface model. Every day, the model is run hourly and produces 18-hour forecasts.

The RAP products inventory, available at NCEP, includes several regions (model domains) with different horizontal resolutions. These data are available with vertical coordinates on native hybrid levels, and on pressure-level grids that have been interpolated from the native grids. NCDC currently archives RAP CONUS 20km horizontal resolution (252 grid) and CONUS 13km horizontal resolution (130 grid) data, but just the pressure-level grids. These pressure-level grids are at a lower vertical resolution (37 levels) to the native-resolution grids (50 levels).

This archive request is for including the native-resolution, 20km and 13km horizontal resolution CONUS grids.

Please visit the following URL for information describing RAP variables, domain resolutions, and domain coverage: http://rapidrefresh.noaa.gov/

4. What is the time period covered by the dataset? (YYYY-MM-DD, YYYY-MM or YYYY)

From 2014-02-25

Ongoing as continuous updates to the data record

5. Edition or version number(s) of the dataset:

RAP Version 2 (RAPv2)

6. Describe the level to which the data are processed. For example, are these unprocessed raw observations, derived parameters, quality controlled or inter-calibrated data, etc.?

RAP data consist of observations that have been processed through a numerical weather prediction model making a dataset which includes derived parameters.

7. Approximate date when the dataset was or will be released to the public:

2014-02-25

8. Who are the expected users of the archived data? How will the archived data be used?

See questions #24 and #30.

9. Has the dataset undergone user evaluation and/or an independent review process? Did NCEI participate in design reviews?

No

10. Describe the dataset's relationship to other archived datasets, such as earlier versions or related source data. If this is a new version, how does it improve upon the previous version(s)?

NCDC archived RUC data and RAPv1 data, and is currently archiving RAPv2 data. This is one family of model data.

These additional RAP native-resolution grids for the 13km and 20km CONUS domains are a part of this model family.

11. List the input datasets and ancillary information used to produce the data.

The RAP homepage, http://rapidrefresh.noaa.gov/, contains information describing the model and observational input.

- Data assimilation: Ensemble/hybrid/GSI data assimilation (using GFS assimilation ensemble) and GSI from Jan 2013 vs. 2010 version using 3d-varfor NCEP RAP
- New observations assimilated: GOES cloud building, lightning (proxy for radar reflectivity), pseudo-PBL moisture obs from 2m dewpoint obs, soil moisture adjustment within data assimilation, improved radar assimilation
- Uses 1/12-deg NCEP sea-surface temperatures
- Surface fields: MODIS land-surface data including fractional coverage
- High-frequency (every 1h) 3-d objective analyses over all of North America, assimilating the following types of observations:
 -- Commercial aircraft (including moisture data from WVSS-II sensors)
 -- Profiler related
   --- Wind profilers (404 and boundary-layer 915 MHz)
   --- VAD (velocity-azimuth display) winds from NWS WSR-88D radars
   --- RASS (Radio Acoustic Sounding System)
 -- Rawinsondes and special dropwinsondes
 -- Radar reflectivity (3-d)
 -- Surface
   --- Surface reporting stations and buoys (including cloud, visibility, current weather)
   --- Mesonet (defer to RAP version 2)
 -- Satellite
   --- AMSU-A/B satellite radiances
   --- GOES satellite radiances (defer to RAP version 2)
   --- GPS total precipitable water estimates
   --- GOES cloud-top data (pressure and temperature)
   --- GOES high-density visible and IR cloud drift winds

12. List web pages and other links that provide information on the data.

Data files are in GRIB2 format, which require separate tables to describe the contents.

13. List the kinds of documents, metadata and code that are available for archiving. For example, data format specifications, user guides, algorithm documentation, metadata compliant with a standard such as ISO 19115, source code, platform/instrument metadata, data/process flow diagrams, etc.

1. The RAP homepage, http://rapidrefresh.noaa.gov/, contains information describing the dataset.

14. Indicate the data file format(s).

1. GRIB 2

15. Are the data files compressed?

No

16. Provide details on how the files are named and how they are organized (e.g., file_name_pattern_YYYYMM.tar in monthly aggregations).

File output from the daily, 24 runs, of RAP are stored in one directory. In each daily directory, each of the 24 runs have their 18-hourly forecast output saved in one file. File naming patterns are describe at the following site: http://www.nco.ncep.noaa.gov/pmb/products/rap/

17. Explain how to access sample data files and/or a file listing for previewing. If it is not available now, when will it be available?

RAP data products available from NCEP may be viewed here: http://www.nco.ncep.noaa.gov/pmb/products/rap/

RAP data products available from NCDC may be viewed through NOMADS at: http://nomads.ncdc.noaa.gov/data.php?name=access#hires_weather_datasets

18. What is the total data volume to be submitted?

Continuous Data: data volume rate for a continuous data production.

Total Data Volume Rate: 20.5GB per Day
Data File Frequency: 912 per Day
Data Production Start: 2014-02-25

19. Are later updates, revisions or replacement files anticipated? If so, explain the conditions for submitting these additional data to the archive.

No additional updates, revisions or replacement data are anticipated.

20. Describe the server that will connect to the ingest server at NCEI for submitting the data.

Physical Location: NCEP Central Operations
System Name: NCEP Central Operations
System Owner: NCEP Central Operations
Additional Information:

21. What are the possible methods for submitting the data to NCEI? Select all that apply.

1. FTP PULL

22. Identify how you would like NCEI to distribute the data. Web access support depends on the resources available for the dataset.
1. Direct download links
2. Advanced web services (e.g., THREDDS Catalog Service)

23. Will there be any distribution, usage, or other restrictions that apply to the data in the archive?
No known constraints apply to the data.

24. Discuss the rationale for archiving the dataset and the anticipated benefits. Mention any risks associated with not archiving the dataset at NCEI.
NCDC already archives the RAP/RUC datasets. Archiving the native-resolution grids would provide users a higher degree of vertical resolution. Current users of RAP data would benefit from the additional data. There has been a specific user request for these higher resolution grids (see question #30).

25. Are the data archived at another facility or are there plans to do so? Please explain.
No

26. Is there an existing agreement or requirement driving this request to archive? Have you already contacted someone at NCEI?
No

27. Do you have a data management plan for your data?
No

28. Have funds been allocated to archive the data at NCEI?
No

29. Identify the affiliated research project, its sponsor, and any project/grant ID as applicable.
N/A

30. Is there a desired deadline for NCEI to archive and provide access to the data?
Archive by: 2014-02-25
Accessible by:

31. Add any other pertinent information for this request.
Specific users who have requested the archive of these additional data:

Assimilation and Modeling Branch; NOAA Earth System Research Lab, GSD